

What is Claimed is:

1. A capacitance z-axis accelerometer comprising:

5 a fixed electrode having at least two rectangular fixed electrode plates arranged parallel with a top surface of an insulation board, the fixed electrode plates being placed one above another via a plurality of posts and arranged on an electrode-fixing section of the insulation board;

10 a movable electrode having at least two rectangular movable electrode plates alternating with the fixed electrode plates, the movable electrode plates being placed one above another via a plurality of connector posts placed within guide holes perforated through the fixed electrode plates; and

15 a plurality of support beams for connecting the movable electrode with beam-fixing sections, which are arranged respectively adjacent to both ends of the movable electrode, to elastically support the movable electrode.

20 2. The capacitance z-axis accelerometer according to claim 1, wherein the fixed electrode plates are placed one above another at a constant gap via a plurality of posts.

25 3. The capacitance z-axis accelerometer according to claim 1, wherein the movable electrode plates are placed one above another at a constant gap via a plurality of connector posts for

connecting the movable electrode plates together.

4. The capacitance z-axis accelerometer according to claim 1, wherein each of the movable electrode plates comprises a rectangular plate having an area smaller than that of each fixed electrode plate.

5. The capacitance z-axis accelerometer according to claim 1, wherein each of the support beams comprises elastic members of a predetermined length for connecting both ends of the uppermost one and the lowermost one of the movable electrode plates.

6. The capacitance z-axis accelerometer according to claim 1, wherein the fixed and movable electrode plates and the support plates are perforated with etching holes for introducing etching solution for the formation of a sacrificial layer for allowing the z-axial displacement of the movable electrodes.

7. The capacitance z-axis accelerometer according to claim 1, further comprising at least one projection extended from the fixed electrode plates or the movable electrode plates to contact adjacent one of the fixed and movable electrode plates in the deformation of the movable plates.

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8. The capacitance z-axis accelerometer according to claim 7, wherein the projection is conical to perform point-contact with an adjacent and corresponding one of the fixed and movable electrode plates.

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9. The capacitance z-axis accelerometer according to claim 7, wherein the projection is semicylindrical to perform line-contact with an adjacent and corresponding one of the fixed and movable electrode plates.

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10. A capacitance z-axis accelerometer comprising:

first and second fixed electrodes each having at least two rectangular fixed electrode plates arranged parallel with a top surface of an insulation board, the fixed electrode plates being placed one above another via a plurality of posts and arranged on an electrode-fixing section of the insulation board;

first and second movable electrodes each having at least two rectangular movable electrode plates alternating with the fixed electrode plates, the movable electrode plates being placed one above another via a plurality of connector posts placed within guide holes perforated through the fixed electrode plates; and

a plurality of support beams for connecting the movable electrodes with beam-fixing sections, which are arranged respectively adjacent to outer ends of the movable electrodes and between the movable electrodes, to elastically support the

movable electrodes.

11. The capacitance z-axis accelerometer according to claim 10, wherein the support beams elastically connected with
5 the first and second movable electrode have heights different from each other so that changes of capacitance with respect to the z-axial displacement have opposite polarities.

12. The capacitance z-axis accelerometer according to
10 claim 10, wherein each of the movable electrode plates comprises a rectangular plate having an area smaller than that of each fixed electrode plate.

13. The capacitance z-axis accelerometer according to
15 claim 10, wherein each of the support beams comprises elastic members of a predetermined length for connecting both ends of the uppermost one and the lowermost one of the movable electrode plates.

20 14. The capacitance z-axis accelerometer according to claim 10, wherein the fixed and movable electrode plates and the support beams are perforated with etching holes for introducing etching solution for the formation of a sacrificial layer for allowing the z-axial displacement of the movable electrodes.

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15. The capacitance z-axis accelerometer according to claim 10, further comprising at least one projection extended from the fixed electrode plates or the movable electrode plates to contact adjacent one of the fixed and movable electrode plates
5 in the deformation of the plates.

16. The capacitance z-axis accelerometer according to claim 15, wherein the projection is conical to perform point-contact with an adjacent and corresponding one of the fixed
10 and movable electrode plates.

17. The capacitance z-axis accelerometer according to claim 15, wherein the projection is semicylindrical to perform line-contact with an adjacent and corresponding one of the fixed
15 and movable electrode plates.